

## Food of the blind cave fishes of northwestern Australia

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**Abstract** – Cape Range peninsula, in the arid northwest of Western Australia, contains the only cavernicolous fishes in Australasia, both of which are considered as vulnerable or endangered. They are associated with a stygofauna considered to be of Tethyan origin. *Ophisternon candidum* (Mees, 1962) (Synbranchiformes: Synbranchidae) and *Milyeringa veritas* Whitley, 1945 (Perciformes: Eleotrididae) occur widely in underground waters and are endemic to the peninsula. The gut contents of existing collections were examined to elucidate their prey. Both species of troglobitic fish are opportunistic in their feeding, able to utilize occasional packets of energy entering the stygal realm.

*Ophisternon candidum* eats the specialised stygofauna of the region, including *Halosbaena tulki* (Poore and Humphreys, 1992) (Thermosbaenacea) and atyid shrimps (*Stygiocaris* spp.) and also feeds opportunistically on aquatic larvae living in the more open part of the subterranean system. The biogeographic affinities of *O. candidum* is in accord with that of its main prey. The gut contents constitute the only records of *Stygiocaris* and *Halosbaena* from Tantabiddy Well (C-26), the type locality of *O. candidum*. *M. veritas* primarily feeds opportunistically on invertebrates accidentally introduced into the aquatic system (mostly terrestrial isopods and cockroaches) but also feeds on the stygofauna.

### INTRODUCTION

The Cape Range peninsula in the arid northwest of Australia is noted for its subterranean animals, both a terrestrial fauna with wet forest affinities (Humphreys 1993a, 1993b, 1993c, 1993d), and an aquatic fauna with Tethyan affinities (Humphreys 1993a, 1993d; Knott 1993). Amongst the latter are two species of blind cave fish, the Blind or Cave Gudgeon, *Milyeringa veritas* Whitley, 1945 (Perciformes: Eleotrididae) and the Blind Cave Eel, *Ophisternon candidum* (Mees, 1962) (Synbranchiformes: Synbranchidae). These two species of fish comprise the entire vertebrate troglobite fauna of Australasia. While other stygobiontic fish have been extensively researched (e.g. Wilkens 1988), nothing is known of the ecology of those inhabiting the Cape Range peninsula.

The Synbranchidae, or swamp eels, are widely distributed in tropical and sub-tropical regions. They exhibit marked habitat plasticity, being predominantly freshwater inhabitants but extending into brackish and estuarine waters; the same species may occupy a range of epigeal habitats from streams and lakes to swamps and marshes. Swamp and marsh dwellers often show amphibious or burrowing habits and many are capable of aerial respiration (Rosen and Greenwood 1976).

The genus *Ophisternon* has a disjunct distribution, being found in Australasia, Indo-Malaya, west Africa and some island and mainland areas of the Caribbean. While the diet of *O. candidum* has been unrecorded previously, synbranchids are recognized as nocturnal predators (Moyle and Cech 1982). Cavernicolous species, showing considerable atrophy of the eye tissue, occur on the Yucatan peninsula, Mexico (*O. infernale*) (Rosen and Greenwood 1976) and in Australia (*O. candidum*).

The Eleotrididae are widespread in tropical and subtropical shallow marine to fresh waters mainly in the Indo-Pacific region (Nelson 1984). The monotypic genus *Milyeringa* is endemic to the Cape Range peninsula but the phylogenetic relationships between members of the family Eleotrididae have not been established (see discussion in Knott 1993). *M. veritas* is cavernicolous, eyeless and translucent. This species has been considered to feed opportunistically upon detritus, algae and whatever animals, including insects, accidentally fall into the water (Allen 1989).

Their subterranean habitat restricts observation in life and hence very little is known about the biology of these fishes. Nonetheless, they have respectively been classified as rare and recommended for total protection, and vulnerable (Michaelis 1985); both fish species as well as two of